

AMENDMENT TO THE CLAIMS

Please **CANCEL** claims 12-21.

A copy of all pending claims and a status of the claims is provided below.

1. (original) A method of fabricating a capacitor, comprising:
forming a bottom electrode;
forming at least one lower surface expansion structure to the bottom electrode;
conformally depositing an insulator film to exposed portions of the bottom electrode and at least one lower surface expansion structure; and
forming a top electrode having a planar surface with at least one upper surface expansion structure separated from the at least one lower surface expansion structure by the insulator film.
2. (original) The method of claim 1, wherein forming a top electrode having a planar surface comprises planarizing a surface of the top electrode by a polishing process.
3. (original) The method of claim 1, wherein the bottom electrode is capacitively coupled to the top electrode substantially through sides of the at least one lower and upper surface expansion structures.
4. (original) The method of claim 1, further comprising forming multiple lower surface expansion structures in electrical communication with the bottom electrode by:
forming gaps between the at least one lower surface expansion structures;
exposing sidewalls of the lower surface expansion structures and portions of the bottom electrode;
conformally depositing an insulator film on the portions of the bottom electrode and sidewalls of the multiple lower surface expansion structures; and

forming multiple upper surface expansion structures of the at least one upper surface expansion structure protruding into the gaps and separated from the multiple lower surface expansion structures by the insulator film.

5. (original) The method of claim 4, wherein the multiple lower surface expansion structures are interleaved with the multiple upper surface expansion structures.

6. (original) The method of claim 1, wherein the at least one lower surface expansion structure is a first spiral shape and the at least one upper surface expansion structure is a second spiral shape configured to be interleaved with the first spiral shape.

7. (original) The method of claim 1, further comprising fabricating a second capacitor using the steps of claim 1, and arranging the second capacitor on a top of the capacitor of claim 1.

8. (original) The method of claim 1, further comprising:
forming a bottom electrode;
forming at least one lower surface expansion structure to the bottom electrode;
conformally depositing an insulator film to exposed portions of the bottom electrode and at least one lower surface expansion structure;
forming a top electrode without at least one upper surface expansion structure separated from the at least one lower surface expansion structure by the insulator film.

9. (original) The method of claim 1, wherein the top electrode and the at least one upper surface expansion structures are formed simultaneously.

10. (original) The method of claim 1, wherein the at least one lower surface expansion structure is formed by:
depositing an interlayer dielectric material on the bottom electrode;

patterning the interlayer dielectric material to form factors;
depositing conductor material into the features such that the conductor material is in contact with the bottom electrode;
further patterning the interlayer dielectric material to form gaps between the deposited conductor material.

11. (original) The method of claim 10, wherein the patterning of the interlayer dielectric layer is one of dual tone resist, sidewall image transfer and masking using self-assembled nanocrystals.

Claims 12-21. (canceled)

REMARKS

Claims 1-11 are currently pending in the application. By this amendment, claims 12-21 are canceled. Applicants elect Group I, claims 1-11, without traverse.

Applicants request examination on the merits. The Examiner is invited to contact the undersigned at the telephone number listed below, if needed.

Respectfully submitted,
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A handwritten signature in black ink, appearing to read 'Andrew M. Calderon', written over a horizontal line.

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